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**Recommendations and standards:**

**Support to capacity building and technical cooperation**

### Executive Guide on E-Negotiation

**Revision**

**Submitted by the Bureau**

#### *Summary*

This executive guide on e-negotiation describes a business requirements specification for e-negotiation, which can be applied to the process of coordinating and negotiating the terms and conditions of trade between business entities in various business domains and provides useful scenarios for its application. The guide presents negotiation and adjustment processes as they relate to specific business domains.

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## I. Introduction

1. This executive guide on e-negotiation describes a generic business requirements specification (BRS) that can be applied to various business domains. However, with e-negotiation, it can be difficult to understand the implementation method and the business value within specific business domains such as logistics and manufacturing. In addition, various interpretations are possible when the e-negotiation BRS process is applied to different domains and this can result in contractual problems among business partners. The United Nations Centre for Trade Facilitation and Electronic Business (UN/CEFACT) standardizes the semantics of messages exchanged in business. In order to prevent the miscommunications mentioned above, use cases, including semantics for each domain, have been created and are described in this guide.

## II. Objective

2. The first purpose of this executive guide is to present the negotiation and adjustment process as it relates to specific domains to ensure the meaningful interpretation of adjustments and negotiations between business partners.

3. Secondly, specific examples have been included; these are intended to be a reference so that e-negotiation design and standardization can be facilitated in new domains. For example, the use cases for each domain have been described from the viewpoint of adjustment and negotiation.

## III. Scope

4. This guide standardizes the process of coordinating and negotiating the terms and conditions of trade between business partners. However, the exchange of standardized orders that takes place after the process of negotiation is NOT within the scope of this guide.

5. In principle, this guide uses an existing UN/CEFACT specification for each domain. In cases where a standardized information model does not exist to describe the use case scenarios for negotiating commercial terms within a specific domain, the information models in this guide can be used as a reference. The information for each domain is described in detail later in this document (Part IV: Business requirements elaboration, sections A, B, C and D).

## IV. Business requirements elaboration

### A. Bid process in maritime transportation

Table 1:

#### Terms

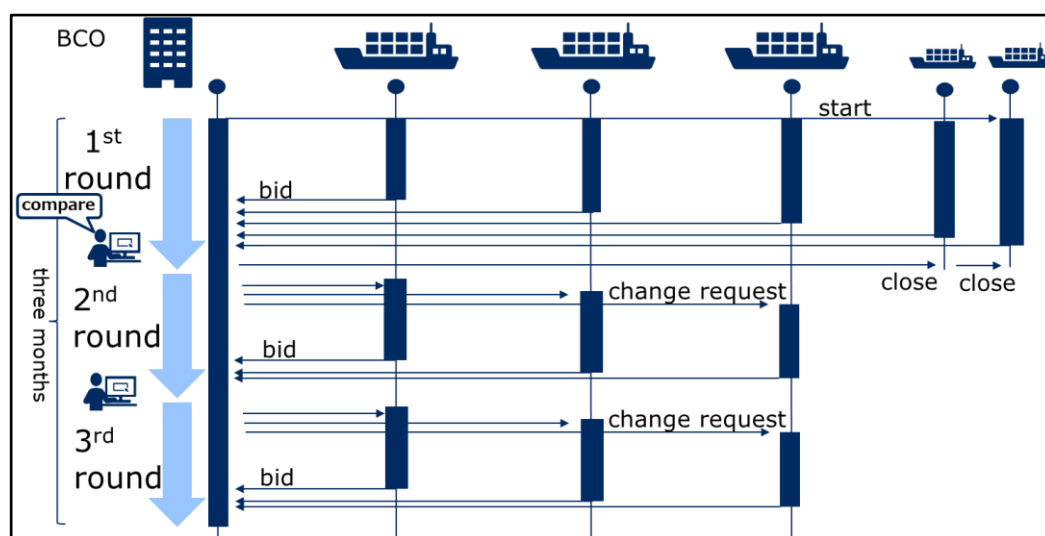
<i>Term</i>	<i>Definition</i>
Bid	A process that involves presenting a proposal to the negotiating partner and carrying out its content upon acceptance

#### 1. Overview

6. A beneficial cargo owner (BCO) refers to an importer who takes control of their cargo at the point of entry and does not utilize a third-party source like a freight forwarder (FF). Typically, BCOs are large companies that import products regularly, thus, they will have an in-house department for import procedures.

7. A BCO chooses a maritime transportation company in one of the following ways:
  - Using a maritime transportation company booking system (mainly used by those with some ad-hoc need);
  - Engaging in direct negotiation with a maritime transportation company (mainly used for large, long-term agreements); and
  - Having a select group of maritime transportation companies bid on the contract (used mainly for large, long-term agreements).
8. Further in this section we will be giving an example of long-term negotiation in a case where a BCO chooses one or more maritime transportation companies once a year and compares offers by using an electronic bidding system.
9. Even when electronic bidding systems are used, it still takes a few months for a BCO to select a maritime transportation company. There are several reasons for this:
  - There are a large number of parameters to compare, and it may be necessary for this work to be done by a person;
  - Each BCO requires different parameters using a different electronic bidding system;
  - Almost all the maritime transportation company departments are involved in the bidding process (commercial for pricing; customer service and operations for service level agreement (SLA) requirements; financial for payment terms and invoicing requests; IT systems for electronic data interchange (EDI) and report requests; and a local representative when the BCO is international), and
  - There are usually two rounds of offers and one face-to-face negotiation.
10. For these reasons, BCOs are forced to negotiate once a year—usually January or April, depending on own their financial calendar year. Since there are various environmental factors at play, such as changes in demand and market conditions, BCOs may want to make selections more frequently. To do this, negotiations may be streamlined using robotic process automation (RPA)/artificial intelligence (AI), etc.
11. There is no standardized mechanism for such negotiations in the maritime transport domain. For this reason, maritime transportation companies are forced to respond by changing the negotiation method individually for each BCO. Figure 1 shows an overview of a scenario where a BCO publishes their annual offer for a maritime transportation service.

Figure 1:  
**Selection of carriers in maritime transportation**



## 2. Bid process scenario

12. Round 1:
  - A BCO sends the invitation to participate in an offer for annual maritime transportation service to select maritime transportation companies. The expected dates for the next rounds may appear in the invitation;
  - The maritime transportation companies send their negotiation offers; and
  - The BCO evaluates the offers.
13. Round 2:
  - The BCO sends the invitation to update offers, they may also request that certain parameters be updated; and
  - The maritime transportation companies send their updated negotiation offers.
14. Round 3:
  - The BCO evaluates the updated offers;
  - The BCO sends an invitation for face-to-face negotiations; and
  - Face-to-face negotiations take place.

## 3. Negotiation condition and issues

15. As previously mentioned, there are a wide range of parameters in the offer. These parameters are classified into two categories: conditions and issues.
  - Conditions:
    - Origin-Destination;
    - Quantities (e.g. weight and number of containers in twenty-foot equivalent units (TEUs));
    - Kind of commodity (e.g. plastic products, marble stones);
    - Kind of package (e.g. 20-foot container, open-top container);
    - Frequency (e.g. twice a month, once a week);
    - Periodicity (e.g. continually throughout the year, only in winter);
    - Incoterms<sup>1</sup> to be used (e.g. “free on board” (FOB); “free carrier” (FCA)); and
    - Logistic services needed (e.g. land transportation at destination).
  - Issues:
    - Peak season charges (e.g. included or not in the price);
    - Congestion charges (e.g. included or not in the price);
    - Demurrage fee (e.g. included or not in the price);
    - Storage fees (e.g. price per day, number of free storage days included);
    - Land transportation fees;
    - BAF—bunker adjustment factor (e.g. additional charge reflecting the cost of fuel to be used for the voyage, included or not in the price);
    - Transit time; and
    - Inland dray transit time.

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<sup>1</sup> International commercial terms (incoterms) clarify the rules and terms buyers and sellers use in international and domestic trade contracts.

## B. Freight space adjustment in air cargo

16. A sudden change in demand or supply (e.g. due to COVID-19) will trigger a negotiation on the price, delivery deadline, compensation, etc. Figure 2 illustrates the concept of nested negotiation.

Figure 2:

**Relationship between actors in the nested negotiation**

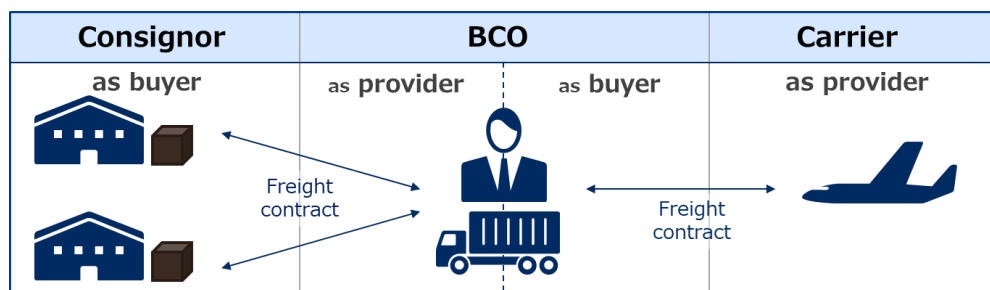


Table 2:

### Terms

<i>Term</i>	<i>Definition</i>
Transport service buyer (consignor or BCO)	The buyer of transport services as stipulated in a transport service contract
Transport service provider (carrier or BCO)	The provider (i.e., seller) of transport services as stipulated in a transport service contract
Spot contract	An ad-hoc request from a transport service buyer against a transport service provider's capacity
Allotment contract	A contract which enables the smooth operation of business by securing a certain amount of transportation capacity in advance; the contract is for a specific period, such as a whole season or part of a season

17. This section describes a negotiation scenario for a spot contract where the allotment contract has already been completed.

## 1. Negotiation overview

Figure 3:  
Negotiation category and hierarchical flow of negotiation

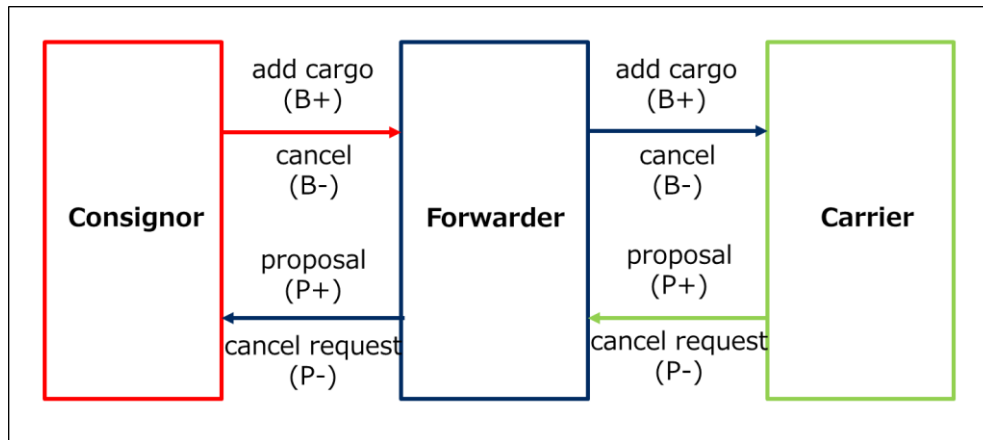


Table 3:  
Negotiation category and flow

Negotiation initiator	Negotiation counterpart	Description
Consignor	BCO (as forwarder)	Represented by <b>red</b> arrow in Figure 3 Negotiation will occur when the consignor asks for an increase or decrease in cargo
BCO (as forwarder)	Consignor	Represented by <b>blue</b> arrows in Figure 3
	Carrier	Forwarder will start nested negotiation after receiving an offer of negotiation from the consignor or carrier
Carrier	BCO (as forwarder)	Represented by <b>green</b> arrow in Figure 3 Negotiation will occur when the carrier asks for an increase or decrease in cargo

Note: A BCO who negotiates with both the consignor and carrier may view or purchase carrier's spot slot to resolve the request. Spot slots and their prices are generally publicly available, so there will be no negotiation when purchasing spot slots.

18. The left side of Figure 3 is treated as a lower level in the hierarchical flow of negotiation, and the right side is treated as a higher level in hierarchical flow of negotiation. Left-to-right negotiations are labelled B (to indicate they are initiated by the **buyer**) and right-to-left negotiations are labelled P (initiated by the **provider**).

19. The [+] indicates negotiations to add cargo and spot slots; [-] indicates negotiations to cancel; and the presentation of alternatives are also [-] and [+]. When both sides are negotiating at the same time, the negotiation is described as [- +] or [+ -].

20. In this section, when pointing to a certain negotiation, the notation B or P is combined with notation [+] or [-] and described as B+, P-, etc.

## 2. Business requirements

### 2.1 Negotiation scenarios from consignor to BCO

#### B+

Following scenarios occur when a consignor sends a request to increase cargo:

Table 4:  
**B+ scenarios**

<i>No.</i>	<i>Scenario</i>
1	BCO allots the consignor's new spot slot from the available reserved spot slots
2	BCO reserves new carrier's spot slot (preferred day)
3	BCO reserves new carrier's spot slot (non-preferred day)
4	BCO rebalances the allotments among consignor's spot slots

### **B-**

Following scenarios occur when a consignor sends a request to cancel a shipment:

Table 5:  
**B- scenarios**

<i>No.</i>	<i>Scenario</i>
1	Forwarder rebalances the allotment among the reserved spot slots

## **2.2 Negotiation scenarios from carrier to BCO**

### **P-+**

Following scenarios occur when a carrier sends a request to cancel the already reserved spot slot and presents an alternative flight:

Table 6:  
**P-+ scenarios**

<i>No.</i>	<i>Scenario</i>
1	BCO allots the consignor's new spot slot from the available reserved spot slots

### **P-**

Following scenarios occur when a carrier requests a reduction in the spot slot without presenting an alternative flight:

Table 7:  
**P- scenarios**

<i>No.</i>	<i>Scenario</i>
1	BCO rebalances the allotment among the reserved spot slots
2	BCO reserves carrier's new spot slot (preferred day)
3	BCO reserves new carrier's spot slot (non-preferred day)
4	BCO rebalances the spot slots on alternate flights
5	BCO rebalances the allotment among consignor's spot slots

### 3. Information flow definition

#### 3.1 BCO allots the consignor's new spot slot from the available reserved spot slots

21. This section describes the B+ scenario 1 from section B, 2.1: Negotiation scenarios from consignor to BCO. The BCO receives a transport order request from a consignor to move an additional shipment of goods, which is then adjusted within the scope of the allotment. At this time, the BCO will neither be reserving a new spot slot for the consignor, nor will they be rescheduling the contracted spot slots with other consignors to make it work, as described in Figure 4.

Figure 4:

**BCO, as forwarder, allots the consignor's new spot slot from the available reserved spot slots (use case diagram)**

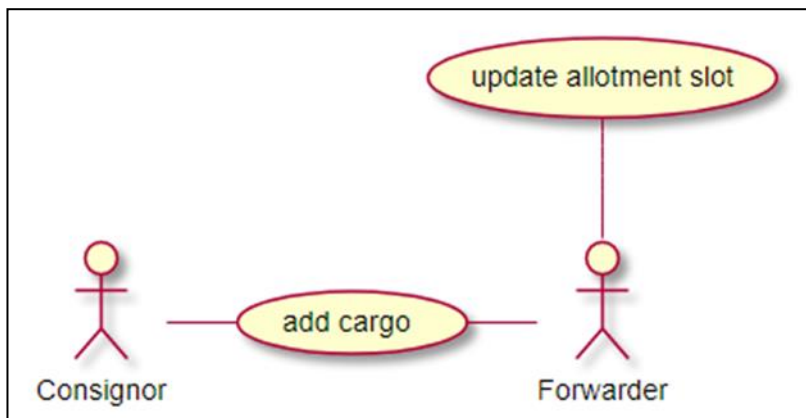


Table 8:

**BCO allots the consignor's new spot slot from the available reserved spot slots (use case description)**

<i>Identifier</i>	<i>Add cargo</i>
Description	Consignor asks BCO to add cargo Consignor and BCO negotiate (e.g. by specifying price, quantity and delivery date). If negotiation is agreed, the BCO assigns cargo to an allotment spot slot contracted with carrier.
Partner types and roles	Consignor: Asks BCO to add cargo and start negotiation BCO: Assigns the requested cargo from the consignor to the allotment spot slot
Constraints	BCO must have completed the allotment contract with the carrier in advance



22. Figures 5 and 6 represent the activity diagrams which describe two phases: the "negotiation phase" and "commitment phase".

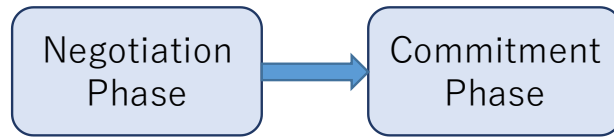


Figure 5:  
Phase transition

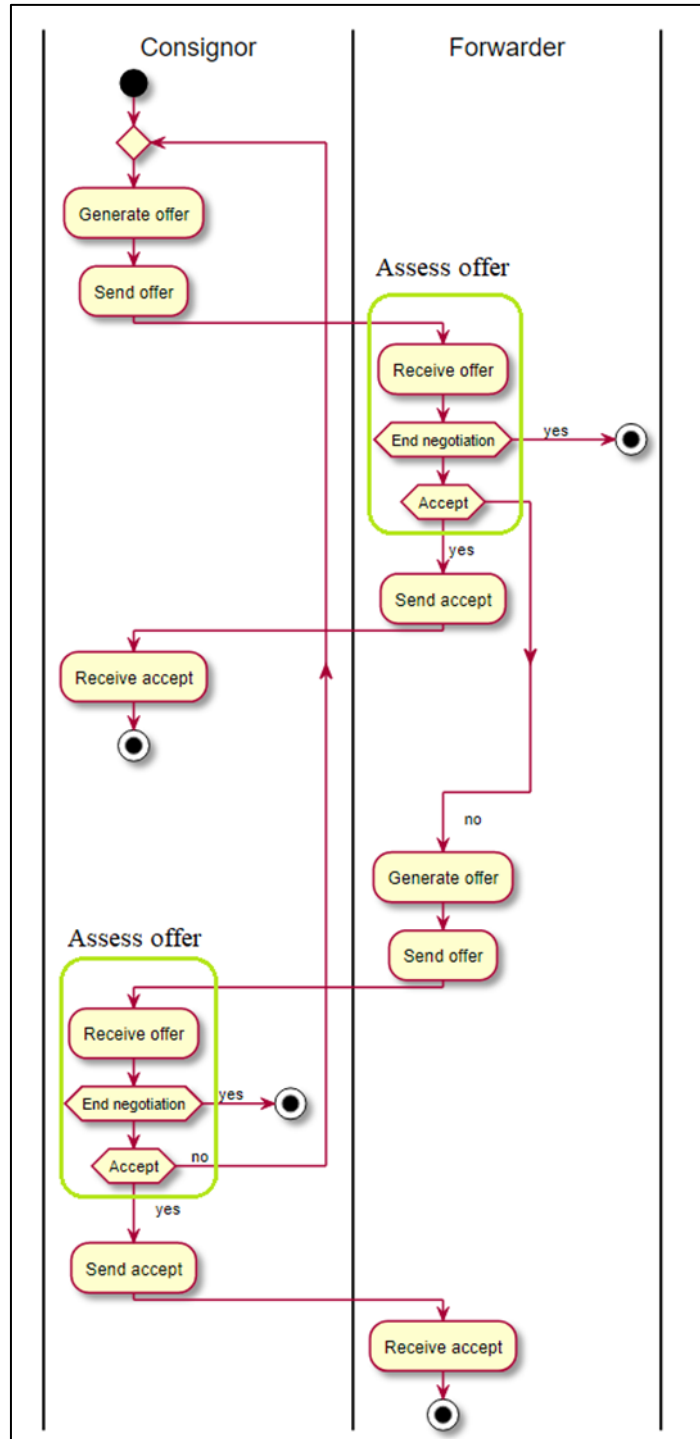
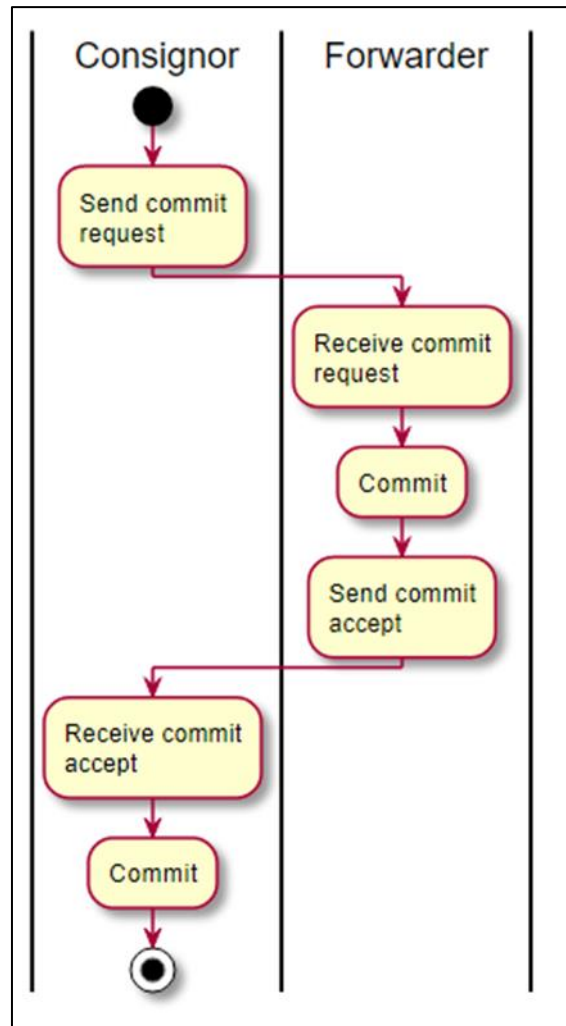


Figure 6:  
**BCO allots the consignor's new spot slot from the available reserved spot slots activity diagram (negotiation phase)**



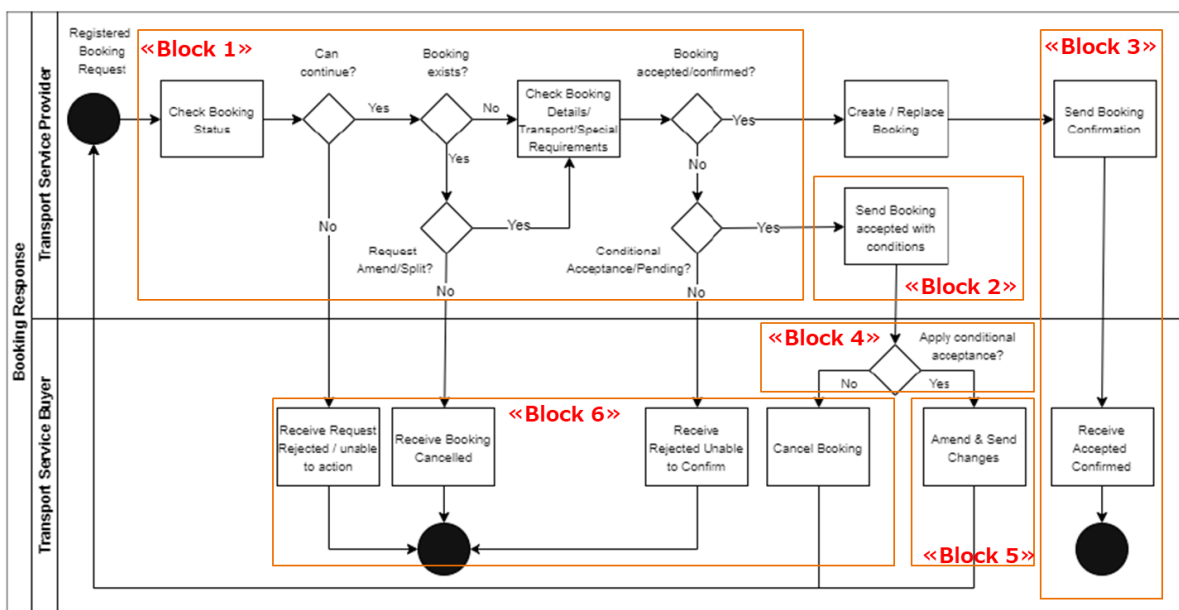
### C. International forwarding and transport (IFT) booking

23. Bookings form an integral part of the UN/CEFACT Buy-Ship-Pay model, where booking transportation of goods not only involves managing the available capacity of transport service providers, but it also binds the supply chain together with a transport schedule. This service provides multiple interested parties with the scheduled movements of a consignment from which the delivery of service can be executed and measured. For details about booking requirements and terms, refer to the UN/CEFACT booking BRS. In Figure 7 below (IFT booking activity diagram) various processes are defined within the square boxes, which are referred to as blocks. Multiple IFT booking blocks are combined within this e-negotiation framework. Figure 7 presents an activity diagram which describes the BRS on IFT booking<sup>2</sup>.

24. The red coloured frames with labels in Figure 7 describe the functions of alternating offers protocol (AOP). AOP is a structured form of negotiation between two parties who take turns making offers as described in the e-negotiation BRS.

25. Existing business flows are handled through negotiation, where the <<GenerateOffer>> and <<AssessOffer>> steps are repeated between two or more actors until the negotiation is concluded.

Figure 7:  
IFT booking activity diagram



Block 1: Assess offer    Block 2: Generate offer    Block 3: On agreement  
 Block 4: Assess offer    Block 5: Generate offer    Block 6: On disagreement

### D. Scheduling in manufacturing

#### 1. Overview

26. Cross-industry scheduling involves negotiating, through the exchange of messages, the demand forecast and supply instructions.

<sup>2</sup> UN/CEFACT, Business Requirement Specification: International Forwarding and Transport (IFT) Booking, 2021. Available at [https://unece.org/fileadmin/DAM/cefact/brs/BRS\\_Booking\\_v1.pdf](https://unece.org/fileadmin/DAM/cefact/brs/BRS_Booking_v1.pdf).

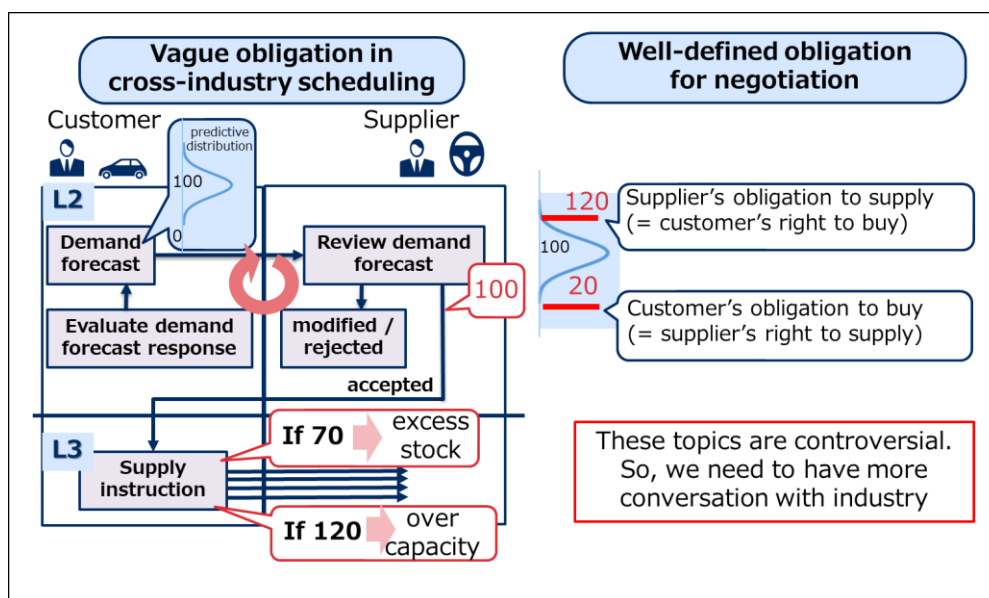
27. The BRS on e-negotiation describes negotiation using a domain-independent information model. The message exchange stipulated in the BRS for cross-industry is consistent with the message exchange in the BRS for e-negotiation.

28. In the demand forecast process, information on the expected quantity is exchanged between negotiating parties. Underpinning this information exchange is a mutual understanding that these are estimated values, however, some level of obligation is negotiated. The obligation with regard to quantity must be defined because a lack of obligation can result in excess stock or overcapacity for the supplier. Additionally, by clearly defining this obligation, quantitative automatic evaluation using AI etc. is also possible.

## 2. Scenario

29. Figure 8 presents an example of the demand forecast and supply instruction processes between a buyer (e.g. car manufacturer) and a supplier (e.g. car parts manufacturer of handles, wheels and engines). These processes correspond to “5.1.4.2 Demand and Capacity Adjustment” (L2) and “5.1.4.3. Individual Order” (L3) described in the e-negotiation BRS<sup>3</sup>.

Figure 8:  
Demand forecast and supply instruction



30. In a demand forecast process, the buyer predicts the sales volume of the product and, based on this, suggests the required number of parts of the supplier. The supplier evaluates the suggestion and replies whether the sales volume is acceptable. If it is not acceptable, the supplier replies with the supply volume, taking into account its own production capacity and desired sales quantity. However, since the determined value is just an estimated value, the actual supply amount may fluctuate, depending on demand.

31. The supplier will plan a production schedule based on this estimated value; however, in general, actual sales volume often deviates from the forecast because it is difficult to predict the demand volume perfectly and the quantity requested by buyer may deviate from this reference value as well. Therefore, excess stock (due to lack of demand on the buyer side) or an overcapacity request (due to excess demand on the buyer side) may result for the supplier.

32. To introduce e-negotiation for these processes, it is necessary to clearly define the obligations of buyer and supplier in the negotiation message exchange, as stated below:

- Supplier's obligation to supply (buyer's right to buy); and

<sup>3</sup> UN/CEFACT, Business Requirement Specification: E-Negotiation, available at [https://unece.org/sites/default/files/2021-11/BRS-eNego\\_v0.7.pdf](https://unece.org/sites/default/files/2021-11/BRS-eNego_v0.7.pdf), page 13- 14

- Buyer's obligation to buy (supplier's right to supply).

33. The demand forecast and supply instruction process allows suppliers to control the range of supply obligations in the L2 negotiation phase because they can take into account their own production capacity in this phase. This prevents the occurrence of excess stock and overcapacity in advance.

34. The L2 negotiation phase is based on the forecast but the actual the demand may differ and cause the L3 negotiation phase. Moreover, in the L3 negotiation phase it is possible to further negotiate the excess or shortage of demand when it deviates from the predicted value because the supply obligation of the supplier is exceeded or the purchase order of the buyer is less than the obligation, etc. For more information about L3 negotiation use cases, please see section B on freight space adjustment in air cargo.

### **3. Cross-industry specification information**

35. For information related to the Cross-Industry specification, refer to the UN/CEFACT Cross-Industry Scheduling BRS and UN/CEFACT Cross-Industry Quotation BRS.

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